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«Who» «Where» and «Why» moves to checkmate imported malaria?

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“Malaria is ... like chess, it is played with a few pieces, but is capable of an infinite variety of situations” L. Hackett, 1937 (1)

After a decade of declining numbers of malaria cases in many endemic areas, the threat of travelers' malaria appeared to diminish and the perceived risk of acquiring malaria during travel paled in comparison to other mosquito-borne infections. However, the latest 2018 world malaria report shows an increase in the global total of malaria cases: in 2017, an estimated 219 million cases of malaria occurred worldwide (95% confidence interval [CI]: 203–262 million), compared with 217 million cases in 2016 (95% CI: 200–259 million). Some 92% (approximately 200 million) of the 2017 cases were in the WHO African Region (2).

Like endemic malaria, imported malaria is a complex epidemiological puzzle. In our agile, interconnected, global community with an unprecedented 1.3 billion tourist arrivals per annum, including approximately 41 million tourist arrivals in Sub-Saharan Africa in 2017 (3), it is par for the course that large numbers of imported malaria cases will be seen and reported in industrialized countries like the United Kingdom (UK), that are classified “malaria free”.

Many countries mandate reporting of malaria cases and the UK has an effective reporting system under the auspices of the Malaria Reference Laboratory reporting over 1500 cases per year. The main risk group identified in the national malaria statistics is the “*visiting friends and relatives*” (VFR) African group who visit their country of origin. This finding reflects the findings of the WHO global malaria situation report showing that 92% of malaria cases occur in Africa, particularly in West Africa. The VFR traveller group has been shown to have poor uptake of malaria chemoprophylaxis which is likely to be due to a number of factors including this group not seeking or not able to access malaria prevention advice prior to travel, or not being given good advice, or not adhering to it. Additionally their perception of risk may be lower as they are travelling to a country that is familiar to them, and the cost of chemoprophylaxis may also be a prohibitive factor (4).

National surveillance is never perfect, even for the UK data it is estimated that this enhanced surveillance system still only captures 56% of cases in England (5) and may not include cases that were diagnosed and/or treated abroad. Certain key data variables are often missing in national statistics. These include details such as exposition type, itinerary, chemoprophylaxis use – or lack thereof, adherence to preventive measures and details concerning presentation and course of the malaria infection. Nevertheless, information, data and trends in imported malaria are key to formulating prevention guidelines and recommendations for travel medicine practitioners (6).

The paper from Moyo et al. (7) in this issue evaluated, in detail, 225 cases of imported malaria treated at Addenbrooke's hospital, Cambridge, England and placed these cases in the context of imported malaria in the UK. The area of acquisition of most cases of malaria, in their study, was Africa, particularly West Africa. Their single center results reflect the overall national epidemiology of imported malaria but bring a new twist in that they stress that the prevention focus should not just be on VFR travelers but also on those traveling for work and tourism to Africa. The numbers of imported malaria cases in the latter two groups combined exceed the VFR group. The Cambridge paper also highlights that malaria chemoprophylaxis uptake in occupational and tourist travelers to

Africa is low. This may of course reflect the demographics of travelers in the Cambridge area, but does not detract from the fact that some 60% of the malaria patients in this collective, took no chemoprophylaxis at all despite travel to high risk, malaria endemic areas. This publication also shows a case fatality rate (CFR) of 1.5%, distinctly higher than the UK national CFR of 0.4% for imported malaria.

We know the risk groups (VFR, occupational and tourist travelers) and the risk areas (principally African) and we have the chemoprophylaxis and mosquito bite prevention tools to prevent travelers malaria so how can we move forward in what seems to be a travel medicine malaria stalemate? It would appear advisable to increase access to malaria chemoprophylaxis for all travelers to Africa and here the UK has made major changes, that have been incorporated in the current UK malaria prevention guidelines (6). Some effective malaria chemoprophylaxis such as the combination atovaquone/proguanil is now available without prescription in UK pharmacies (8) and this will reduce the barrier to medication procurement. Use of malaria chemoprophylaxis by travelers to high-risk, malaria-endemic, African destinations has been shown to be an effective, travel medicine strategy to prevent malaria and malaria deaths regardless of whether the traveler is a VFR, business traveler or tourist (9). Malaria awareness in returning travelers and health services is also paramount so that malaria can be diagnosed and treated rapidly even in non-urban areas. Delays in diagnosis and treatment have been shown to be key risk factors for malaria deaths in the UK and elsewhere.

A plan to reduce imported malaria in the UK must clearly have a twin focus on “travel” and “Africa”. While some of the preventive strategies will be relevant to all travelers irrespective of their reason for travel, Moyo and colleagues have highlighted that understanding the local context is essential, and that a ‘one-size fits all’ approach will not address the needs of different groups of travelers. The challenge for travel health professionals will be not only to raise awareness, but also to understand their traveler population, their beliefs, and motivations, and their malaria importation patterns so they can truly engage with them and influence behavior and attitudinal changes. Could an effective health communication and social marketing- campaign with travel and airline partners “checkmate” imported malaria?

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